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## PATENT ABSTRACTS OF JAPAN

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**G02F 1/1335**(21) Application number: **10346241**(71) Applicant: **NEC CORP**(22) Date of filing: **04.12.98**(72) Inventor: **SUZUKI TERUAKI****(54) REFLECTIVE LIQUID CRYSTAL DISPLAY DEVICE**

(57) Abstract:

**PROBLEM TO BE SOLVED:** To provide a liquid crystal display device which can dissolve coloring of the display caused by variation of user's viewing direction.

**SOLUTION:** The liquid crystal display device is provided with the upper substrate 2, the lower substrate 3 confronted with the upper substrate 2 and a liquid crystal layer 4 held between the upper substrate 2 and the lower substrate 3. A transparent electrode 5 and an alignment layer 6 are formed on the side in contact with the liquid crystal layer 4 of the upper substrate 2 and together a reflection electrode 7 and an alignment layer 6 are formed on the side in contact with the liquid crystal layer 4 of the lower substrate 3. A laminated quarter-wave plate 10, comprising a 1/2 retardation film 9 and a 1/4 retardation film 8, and a polarizing plate 11 are formed on the side opposite to the liquid crystal layer 4 of the upper substrate 2. In the case the direction of alignment of the liquid crystal layer 4 on the upper substrate 2 side is taken as a reference and the direction of twist of the liquid crystal followed from the upper substrate 2 side to the lower substrate 3 side is defined as positive, the azimuth angle  $\alpha$  of the polarized light absorption axis of the polarizing plate

11 is  $5^\circ$  to  $35^\circ$ , the azimuth angle  $\beta$  of the optical axis of the 1/2 retardation film 9 is  $-15^\circ$  to  $15^\circ$  and the azimuth angle  $\gamma$  of the optical axis of the 1/4 retardation film 8 is  $-75^\circ\text{C}$  to  $-45^\circ\text{C}$ .

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